



# UNITED STATES PATENT AND TRADEMARK OFFICE

*CM*  
UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/668,126	09/22/2003	Kent Whitham	83166	2002
7590	03/08/2004		EXAMINER	
			SWIATEK, ROBERT P	
			ART UNIT	PAPER NUMBER
			3643	
DATE MAILED: 03/08/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/668,126	WHITHAM, KENT <i>118</i>	
	<b>Examiner</b> Robert P. Swiatek	<b>Art Unit</b> 3643	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on 22 September 2003.

2a)  This action is FINAL.                            2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## **Disposition of Claims**

4)  Claim(s) 1-26 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5)  Claim(s) \_\_\_\_\_ is/are allowed.

6)  Claim(s) 1-26 is/are rejected.

7)  Claim(s) \_\_\_\_\_ is/are objected to.

8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on \_\_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All b)  Some \* c)  None of:  
1.  Certified copies of the priority documents have been received.  
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)  Notice of References Cited (PTO-892)  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3)  Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4)  Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.  
5)  Notice of Informal Patent Application (PTO-152)  
6)  Other: \_\_\_\_\_.

### **DETAILED ACTION**

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 8, 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Schroppel (US 5,249,761). The Schroppel control surface setting device includes a drive motor 3, lead screw 4, lead nut 5 mounted for linear travel along the lead screw 4, a crank arm or lever 10 coupled to the lead nut 5, and a fin shaft 12 of integral construction with lever 10 (see Figure 1 of Schroppel).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 19, 21-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schroppel in view of Lang (US 4,795,110). The Schroppel patent does not disclose drive motor 3 as being an *electric* motor. However, it would have been obvious to provide the electric motor 48 of the Lang flight control surface actuation system in place of the drive motor 3 of Schroppel, in order to reduce the overall weight and complexity of the control surface setting device. With respect to claims 21-24, the dimensions of the airborne body employed with the setting device of

the combination Schroppel as modified by Lang would have been obvious to one skilled in the art wishing to employ the setting device with a wide array of airborne bodies.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schroppel in view of Pletschet (US 6,311,576 B1). Although the extent of backlash present in the Schroppel control surface setting device is not disclosed, it would have been obvious to one skilled in the art to substitute the anti-backlash nut 10 of Pletschet in place of lead nut 5 of Schroppel, in order to ensure precision positioning with the threads of the lead screw 4, thereby minimizing unwanted movement, vibration, and play.

Claims 4-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schroppel. The dimensions of the airborne body employed with the setting device of Schroppel, while not disclosed, nonetheless would have been obvious to one skilled in the art wishing to employ the setting device with a wide array of airborne bodies.

Claims 10, 17, 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Schroppel. The patent to Schroppel discloses a method of fin actuation in an airborne body comprising the steps of providing a control surface setting device including a drive motor 3 rotating a lead screw 4, converting the rotational movement of screw 4 to linear movement through the use of lead nut 5 traveling along the lead screw 4, and converting linear movement of the lead nut 5 into rotational movement of a fin shaft 12 through the mechanism of a crank arm or lever 10 coupled to the lead nut 5.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schroppel in view of Lang. The Schroppel patent does not disclose drive motor 3 as being an *electric* motor. However, it would have been obvious to rotate the lead screw 4 of Schroppel with the electric

motor 48 of the Lang flight control surface actuation system, in order to reduce the overall weight and complexity of the control surface setting device.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schroppel in view of Pletschet. Although the extent of backlash present in the Schroppel setting device is not disclosed, it would have been obvious to one skilled in the art to limit the fin shaft backlash by substituting the anti-backlash nut 10 of Pletschet in place of lead nut 5 of Schroppel, in order to ensure precision positioning with the threads of the lead screw 4 and thereby minimize unwanted movement, vibration, and play.

Claims 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schroppel. The dimensions of the portable missile employed with the setting device of Schroppel (see column 4, lines 10, 11, of Schroppel), while not disclosed, nonetheless would have been obvious to one skilled in the art wishing to employ the setting device with a wide array of airborne bodies.

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schroppel in view of Lang as applied to claim 19 above, and further in view of Pletschet. It would have been obvious to one skilled in the art to limit the fin shaft backlash of the combination Schroppel as modified by Lang by employing the anti-backlash nut 10 of Pletschet, in order to ensure precision positioning with the threads of the lead screw and thereby minimize unwanted movement, vibration, and play.

Claims 1-26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In line 1 of each of claims 1-9, 19-26, use of the expression "actuator(s)" is

alternative in nature and does not properly restrict the scope of the invention (note also claim 3, line 2, and claim 20, line 2); in line 1 of each of claims 10, 13-17, the term “actuation(s)” is unclear, alternative in nature, and does not properly restrict the scope of the invention. In claim 19, line 8, “said fin shaft” lacks a prior antecedent basis.

Claims 1-26 are objected to because of the following informalities: In claim 1, line 7, claim 10, line 8, and claim 19, line 5, –and– should be inserted before each occurrence of “moving”; in claims 9, 18, and 26, each occurrence of “is” should be changed to –are–. Appropriate correction is required.

The abstract of the disclosure is objected to because in line 1, “The present invention relates to a novel” should be changed to –A–. Correction is required. See MPEP § 608.01(b).

The disclosure is objected to because of the following informalities: On page 3, line 13, “An” should be changed to –In an–; on page 6, line 7, –100– should be inserted after “means” and deleted from line 8.

Appropriate correction is required.

The Japanese reference 2-217799 has been cited to provide an additional example of a fin actuator.

RPS: 0703/308-2700  
1 March 2004

*Robert P. Swiatek*  
ROBERT P. SWIATEK  
PRIMARY EXAMINER  
ART UNIT 388 3643